

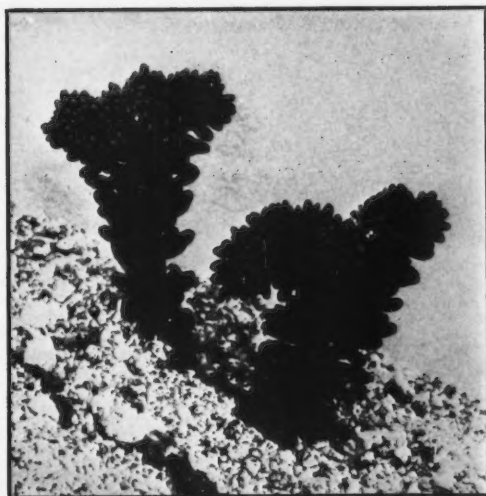
CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

Vol. XII

SEPTEMBER, 1940

No. 9



Fasciated stems of *Sedum album* nat. size.
(See next page)



CACTUS AND SUCCULENT JOURNAL

Published and Owned by the Cactus and Succulent Society of America, Inc., Box 101, Pasadena, California. A monthly magazine to promote the Society and devoted to Cacti and Succulents for the dissemination of knowledge and the recording of hitherto unpublished data in order that the culture and study of these particular plants may attain the popularity which is justly theirs. Subscription \$3.00 per year. Foreign \$3.00 per year by international money order. Membership in the Cactus Society free with subscription. Mail application to SCOTT HASELTON, Editor, Box 101, Pasadena, Calif. Editorial Staff: THE ENTIRE SOCIETY. Entered as Second Class Matter at Pasadena, Calif., under act of March 3, 1879.

Vol. XII

SEPTEMBER, 1940

No. 9

Fasciated Stems of <i>Sedum album</i>	J. R. Brown	137-8
Notes on <i>Apicras</i> , <i>Apicra Skinneri</i>	J. R. Brown	139
A Mammillaria Specialist	E. Shurly	141
Results From a Cold Winter		145
Miscellaneous Notes		146
Washington Cactus and Succulent Show	Mrs. Harry Lewis	147
Are You a Collector or a Keeper of Cacti?	Mrs. Harry Lewis	150

FASCIATION IN SEDUMS

(See Front Cover)

Fasciation occurs in the genus *Sedum* but seldom and only two forms are widely known. One is the fasciated form of *Sedum reflexum* Linn. or, as it is commonly called, the Cockscomb *Sedum*, the other is the fasciated form of *Sedum praealtum* or, as it is known to succulent fanciers, *Sedum praealtum* var. *cristatum*. It was with some interest that the writer noted a large clump of *Sedum album* Linn. about two years ago, which showed a great number of fasciated stems. This plant was the somewhat globular leaved form of *Sedum album* and the accompanying photo shows two of the fasciated stems of this plant.

J. R. BROWN.

PRESIDENT'S MESSAGE

Our genial and overworked Editor will appreciate two types of special articles:

1. Write-ups by doctors (there are many on our list) telling what they get out of cacti. There must be a reason for their interest.

2. Comments from all parts of the country giving sad experiences in starting to collect and grow cacti and succulents. How would you start anew and what would you avoid. Just how would you advise one to start so that one will not lose plants by rot, pests, starvation, neglect? What plants should one start with, when and where should one get them, how should they be recorded, etc? From these notes we will start several beginners and see whether or not one can profit by others' mistakes.

After glancing over the many fine articles now in the editorial office, I am more convinced than ever that the study of cacti is here to stay. Although the Editor has enough material for a 100-page book, please continue your encouragement by flooding him with material and I can promise you a happy Editor.

We are making six color plates for use in the JOURNAL—as promised so long ago. The continuation of Britton and Rose "Naming Cacti" will be off the press in the fall. New features will be added to the JOURNAL along with other surprises.

WM. TAYLOR MARSHALL.

FROM NAPA, CALIFORNIA

In a bed of fifty-four *Echinopsis* plants, there were 124 blooms one day. This proves the value to those who need it of following "Journal" soil information and other helps.

The exposure is west and full sun conditions prevail. In another bed, shaded by slats, bloom is not so prolific and much later.

GLENN A. SHAVER.

FROM SOUTH AFRICA

You mention the California winter as the flowering period of *Aloe arborescens*. Our usual flowering time here is May to June. I know a few localities where there are hundreds and thousands of these lovely plants, and, when in full bloom, they put up truly magnificent displays.

GEO. REYNOLDS.

MIDWEST CACTUS AND SUCCULENT SOCIETY

At the fourth annual meeting of our Midwest Society held Aug. 18, the following officers were elected:

JOHN BOCK, Sharon, Pa., President.

KENNETH KLINE, 1365 W. 111-st, Cleveland, Ohio, 1st Vice-President.

GRACE S. RODGERS, Lorain, Ohio, 2nd Vice-President.

JOHN E. C. RODGERS, 312 Alexander Ave., Lorain, Ohio, Secretary-Treasurer.

The following persons were appointed committee chairmen:

Program, DR. JAMES F. MACHWART, Parma Heights, Ohio.

Publicity, JOS. TRAPP, Cleveland, Ohio.

Library, ANNA VOSS, Cleveland, Ohio.

Blooming Chart, JOHN E. C. RODGERS.

JOHN E. C. RODGERS, Sec'y.

I have about seventy-five *Lobivias*, *Rebutias*, and *Trichocereus* that I would like to exchange for *Disocactus*, *Echinocactus*, *Frailea*, *Melocactus*, *Notocactus*, *Parodia* or *Pyrrhocactus*. I am particularly interested in the above genera.

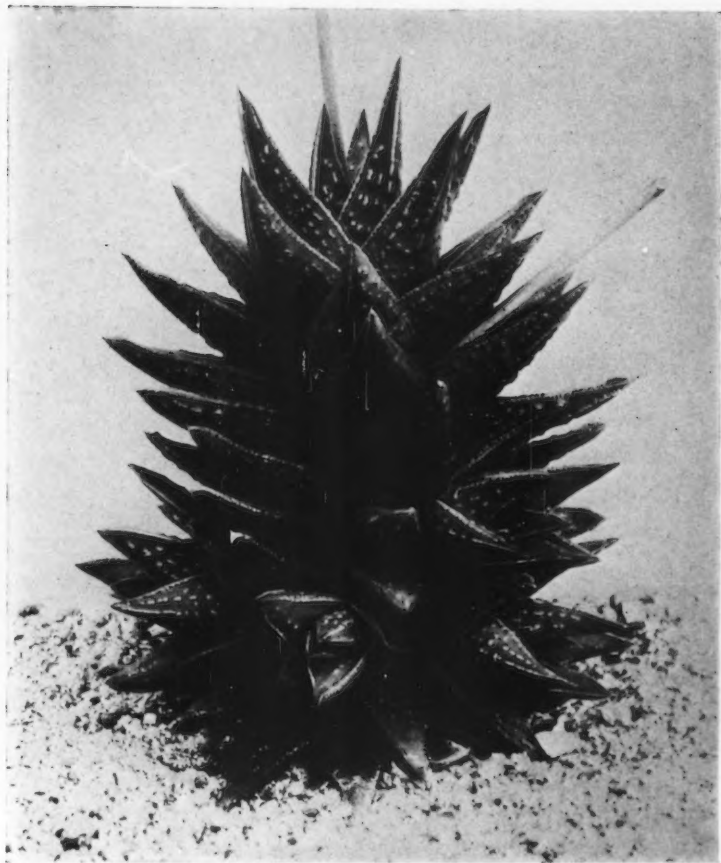
VINCENT I. MASON

96 Cummington Street, Boston, Mass.

EDITOR'S CORRECTION

Vol. XII, No. 4, pg. 68. Change caption of picture No. 8 from *Tbelocactus nidulans* to *T. rinconensis*.

We have had many appreciative letters regarding this article "Beyond the Beaten Path" by Ladislaus Cutak of the Missouri Botanical Gardens. JOURNAL readers have been promised additional treats after Mr. Cutak returns from his Florida sojourn.



Apicra Skinneri Berger nat. size.

Notes on Apicras

By J. R. BROWN

Apicra Skinneri Berger in *Pflanzenr.* IV. 38. (1908) 116.

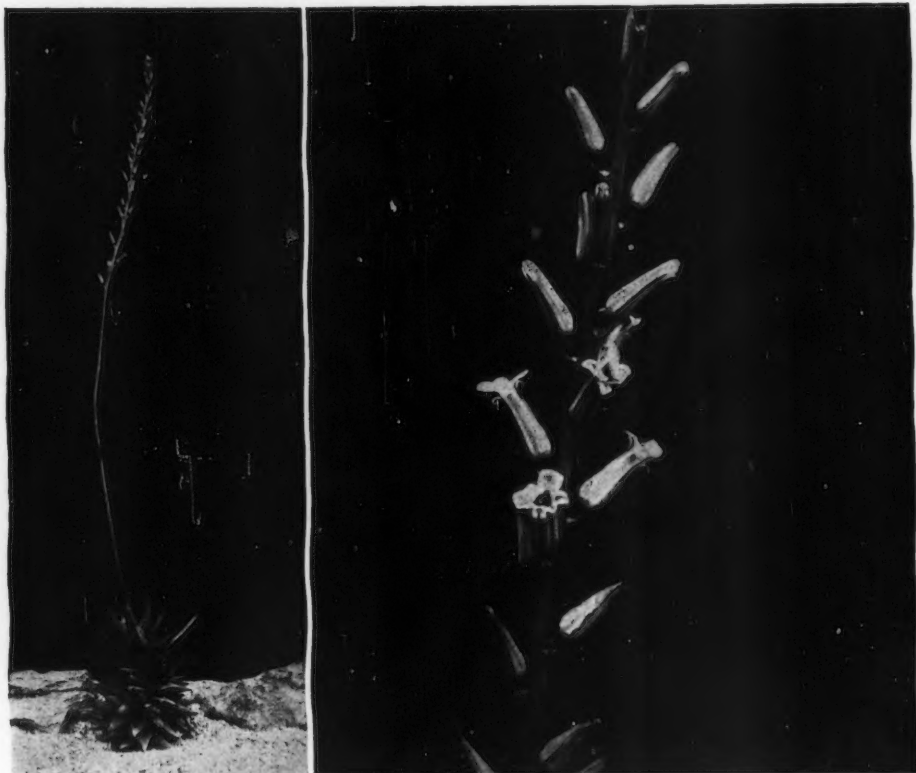
Plant with erect stems, proliferous from or near the base, about 6-7 cm. in diam. Leaves in 5 crowded, spiral rows, erect-spreading, the older leaves spreading, 3-4 cm. long, 20-23 mm. wide towards the base, broadly ovate-deltoid, acute and ending in a point which is not quite pungent, bright green in color, face of leaves somewhat flat and with a few tubercles of the same color as the leaf or sometimes almost entirely smooth, back of leaves very rounded, obliquely keeled or doubly keeled towards the

tip, and with numerous tubercles of about the same color as the leaf or often somewhat whitish especially in the younger leaves, the tubercles irregularly scattered or in somewhat transverse or in lengthwise rows, the margins and keels tuberculately crenulate.

Locality: Unknown. At the present time it has not been recollected in South Africa.

Berger received this plant from Mr. W. Skinner of Thornton Heath, England, and in whose honor he named it.

The plant shown in the illustration of this *Apicra* was received by the writer many years



Apicra Skinneri Berger showing plant in flower, and flowers nat. size.

ago through the kindness of Mr. C. Dennis O'Donoghue of England. It is quite distinct and is extremely slow growing, at least in this particular case. This plant has not so far shown any new growths from the base but, as will be noted, is branching from above the base. Often the secondary keels on the back of the leaves give the appearance of a double margin.

It flowers during April and May in Southern California and a brief description of the inflorescence as it flowered under glass is given here.

Peduncle simple, terete, 30 cm. and more tall including the raceme, sterile bracts few; pedicels 3-4 mm. long, bracts about equalling the pedicels or slightly longer, deltoid, acuminate, membranaceous and with a brown keel; perianth 13-14 mm. long, the obclavate tube greenish, the white, obtuse, spreading segments green lined, obscurely bilabiate, the 3 outer segments recurving.

There is a plant often seen in collections in California under the name of *Apicra Skinneri*, this, however, is a hybrid *Haworthia*, which was

introduced to this country from the firm of De Laet of Belgium many years ago.

FROM MARYLAND

I submit herewith a few observations of an interesting *Bryophyllum*.

Last December I received a plant of *Bryophyllum* hybrid, *B. Daigremontianum* x *B. tubiflorum*. The plant was about three inches tall, badly bruised and battered, the top broken off, and altogether gave the appearance of having led a hard life.

After about a week, the lower leaves began to fall off, finally leaving only the top pair. Then the main stem completely dried up to within one-half an inch of the top. From here on it was obviously impossible to supply water. From the axils of these two remaining leaves four tiny leaves appeared, two pairs to each axil. A few days later roots were visible.

For several weeks the new leaves continued to grow. The two original leaves fell off and the plantlets were removed from the stem and placed in regular soil mixture. Here the pairs of leaves continued to grow until they measured about one inch from tip to tip. Now two stems appeared from between the leaves of each pair. From this time the new stems have behaved as ordinary leaf plantlets; as they have grown, the pairs of leaves have dried up so that now they are free miniature plants.

A Mammillaria Specialist

By E. SHURLY, England

It was some thirty years ago when I was persuaded to go and see a local horticulture show at what is called in London's East End, the People's Palace. I cannot say I was very thrilled until I arrived at an exhibit by an ordinary working man. It was one of those rather usual displays of a miniature glass house, made up in the Colonial style, with verandah, etc., complete and the shrubs in the garden and the plants in tubs on the loggia, etc., were made up of miniature cacti. The workmanship of the exhibit was extremely well done and from this simple display was born my present interest in cacti.

With our English climate, it is not possible to just become interested, put the plants in the garden and let things develop. It is necessary to grow such things as cacti in a greenhouse and it is not everyone who has the house, garden, or the space available to start such a collection. A very important thing, too, is the money. In those days I was not very well off and I had to put off the idea until later on and it was not until about nine years later that I built a very small greenhouse, about four feet square and sent off to an English grower for 100 cacti and succulents which he was then advertising for 25 Pounds. It may surprise the reader to learn that the plants supplied at this price were extremely good value, about half were cacti and half succulents. The cacti were all about 2 inches high and globose plants. It is not very surprising that when later I thought I would get a further lot, the dealer found the price too cheap and could not supply.

You will notice that I have said an English grower. This dealer had been in the business for a very long time and was then an old man of between 60 and 70. He had had plants in his collection nearly all his life and had become very expert in increasing his collection by cuttings and I do not think I have ever met anyone who could approach this old dealer in his skill in cutting and continuing to grow his mother plants. This is the dealer I have referred to several times before as having had plants under cultivation so long that the very nature of the plants had changed. He had a large stock of *Mammillaria Wildii* which had been obtained by cuttings and the stock I purchased seemed hardly to be that plant; obviously such intensive cultivation so changed the outward appearance of the plant. I have used this experience to shape much of my present views on the evolution of cacti.

This collection I kept for a number of years, increasing it slowly as my limited means permitted me, but it did not take very long before my very small house could not hold it all.

In 1927 I moved to a village nearly 20 miles from London and was able to put up a larger house which in its turn became so full that even added shelves could not cope with the influx. At this time one of my friends gave me a properly constructed greenhouse 12 feet by 8 feet and in this I installed a heating apparatus.

My interest in cacti was increasing by leaps and bounds and I found a very great dearth of knowledge and interest. I began to insert articles in the horticulture press and by watching the daily papers I used every opportunity to fan to a flame an interest in the plants which had taken my fancy. Then followed a year of intensive effort in this direction and my daily post was growing rapidly and I was getting in touch

with people who had collections and those who wanted to obtain them. About this time I got in touch with Mr. Neale who was a dealer on the South Coast and by using each other we both obtained a great deal of assistance and he increased his business by leaps and bounds and by supporting me I soon had around me a number of people who I considered ripe for further propaganda. Incidentally I helped Mr. Neale with information in regard to American growers and thus started the most intensive importation of cacti plants into this country which brought a larger number of new plants here than ever before in the history of England.

By this time I had correspondence with innumerable people all over the country and I had succeeded making cacti one of the prominent features of that day. Journalism and even the national comics had taken up the plant. Since I had succeeded in preparing my public, I then decided to launch the British Cactus Society with the result, as you are aware of, that the Society was formed by my unaided efforts. I saw the first year through when ill health, mainly due to overwork on its preparation, caused me to give up the secretaryship to Mrs. Higgins, but I left them with 300 members strong, which is good going after only one year's work.

Soon my health became better and I decided that I would develop my own personal side of cacti. At that time I had a fairly large collection of general cacti and my own general characteristic of collecting was shaping. I was also learning more and more about my subject. I soon found that I was beating against a hurricane if I thought I could go on and earn my living and try to collect all of the cacti. I found I should require all my time and much more money than I had. I, therefore, found myself compelled to restrict my collecting and finally decided to specialize on Mammillarias as being plants not too large and not taking up too much room. I knew that quite a number of people knew about Mammillarias and that I was treading a well-beaten road in my studies, but I further found that although the road had been well beaten there were many obstacles and difficulties and those who were walking with me and those who had walked before had succumbed or were succumbing to the complexities of the situation. I found the subject of Mammillarias so complex and confusing that I blushed at the idea that I had at one time considered collecting all cacti. Since that time I have collected only Mammillarias and have only just come to a point when I can see the end of collation with the real scientific work still to be done. As this is all quite ten years ago I am afraid I should have just got a headache out of trying the whole compass of cacti.

I was also gradually collecting quite a library of books of cacti until I had to buy a larger bookcase and finally have another one built for me. The more I studied these books and the Journals of the American, German, English, Dutch, Belgian and Czechoslovakian Societies of which I had become a member, the more I became convinced that it was quite impossible to do anything really constructive until order was brought out of chaos. It was extremely difficult to get a sight of a large number of books and I commenced visiting the botanical libraries and made extracts of

descriptions, translations, etc., of every published *Mammillaria* until I have completed hundreds of such books.

I found that there were two main systems by which people were collecting and classifying *Mammillarias*—Schumann's and Britton and Rose's, with the latter being less popular. Practically all catalogues, printed matter, etc., then extant were based on the German nomenclature and it can easily be seen what confusion was started when the new names of the same old plants were introduced owing to the new Britton & Rose nomenclature. I have but to mention two very familiar plants in Europe, common too, *M. gracilis* and *M. pusilla*. The Americans handling these plants would never recognize either of them from the Britton & Rose namings. They were the result of intensive cultivation over decades under glasshouse culture and they bore not the slightest resemblance to the parallel plants in the famous 1923 books. In fact, *M. gracilis* is Britton & Rose *M. fragilis* and *M. pusilla* was, in the main, *M. multiceps* and *M. prolifera*.

In addition there were literally hundreds of names that had been published particularly in German books and journals that afterwards were found to be identical to other plants already described. The original plants had been poorly described with insufficient detail and were quite useless in the majority of cases except where there were herbarium specimens or where they could be vouched for by some authoritative person. Most of the synonymy built up today is based rather upon observation by people long dead than upon evidence that can be produced today. Only too frequently the statement that a certain plant was synonymous with another is based upon authority whose word cannot be supported and we have come to accept such an authority as finally authoritative. One has only to investigate a little into the published matter to be very unhappy about the reason of taking such evidence as conclusive.

However, that was the position I found when my interest in *Mammillarias* became a little more scientific and I found it quite impossible to take an intelligent view of the genus as a whole without some further research to clear the ground of the malignant undergrowth that had obscured the issue for so long. I made many false starts to find that I was wasting time and once I began to compile a key and quickly found that I was just an ignoramus and that I was starting with the cart before I had got the horse, so all that had to be scrapped and a new start made.

I soon realized that the only practical way would be to collate the whole of the printed matter on the different *Mammillarias*. This dates back to before the time of Linnaeus and the further I got into my subject the more I found there was to be found. Steadily I built up my quotations until at the moment I have 4,000 of them which only include the fuller descriptions—where only a line or two is given this is merely included in an index. This index contains the works and pages mentioning the various plants and they total at least 10,000 references. I also compiled a list of works in which there were illustrations of *Mammillarias*. I have not yet attained the end of my search, but I have narrowed my work to a comparatively few books and I feel I can see the end of my copying.

Then will come the telling, in serial story, of the whole of the history attached to each plant. It is important to obtain the whole history; if the researcher depends entirely upon the original description he will find the details are extremely poor when dealing with the old named plants. He will, more frequently than not, find that the flower, fruit, etc., were then unknown and its later history furnishes the data so

necessary for really scientific work. In fact, it is quite true that the complete description of an extremely large number of plants is not even now complete and it is surprising to find how many well-known plants have not even yet had their illustration published. There are also a large number of plants that have been named, and illustrated, but no description has yet been published and these are plants found by some collector who gives it a name and then forgets all about it instead of either describing and illustrating it or letting some one else do it. The most modern namings are more scientific than the older ones and many plants still await the formal publication until certain details are obtained. The serious collector has every sympathy with the irritation caused by a certain "spec nova" being received with fruit, notes of which are taken and then the plant does not flower, or the plant flowers and never fruits.

To investigate the position in regard to the older plants will provide ample explanation of the literally terrible confusion in regard to *Mammillarias* and other plants.

My index gives the name of 900 plants given specific rank at some time or other. Investigation proves that it is extraordinarily rare for errors to crop up and that, in official or scientific works, the copying of previous matter is quite accurately done in the main and usually any such errors are easily detected as they are usually only misprints. I have been through the 900 names mentioned above and from my own knowledge I am prepared to say that 286 of them justify specific rank. I know of at least 20 plants that have been found, but not yet described, thus bringing the total to 300 *Mammillarias* justifying specific rank. That is to say, twice the number listed in Britton & Rose's *Cactaceae*.

Such a large number calls for some division and it is certain that this could be done without loss of scientific interest. An accurate division will increase rather than diminish any scientific interest as not only does the subject become less widely to study, but the division if done with reason, will provide a greatly needed knowledge in the evolution of our plants.

When one has to handle a situation that arises from 900 plants, over 600 of which are simply synonyms, it discourages the student. Even when the number is reduced to 300, the proposition is large enough and needs many years of work and endeavor before the student can possibly hope to reduce the facts to some kind of order.

When I have completed all my extracts, it is my intention to commence the serialisation of these extracts together with lists of references and illustrations in regard to each plant together with the cross index indicating under which name any other name is mentioned. One of these copies will be sent to the American, English and German Societies so that they can do what they wish with same. I realize that the complete publication of the matter is too large a thing for either of the *Journals* to publish, but at least each Society will have in its library a complete history in regard to each *Mammillaria* and it should, thereafter, be easy to keep the record up to date.

When this is all complete, and it will take a long time yet, it would be possible to send to the Societies copies of the "serials" as they are done without waiting the completion of the whole scheme. Then the more correct scientific work will begin. Each name would be investigated fully and I should compile comments on the name and its relation to all other printed matter. This method, together with comparison to living plants where possible, will provide the necessary elimination of redundant names. The result will be, I am sure, a residue of approximately 300 names

of genuine specific rank. As I progress with these comments, it will be necessary to complete data where the printed publication has omitted anything that is required to complete the description.

When these comments are complete, the final work can be engaged upon, viz., deciding what is the most reasonable basis on which to compile a true key. The purpose of a key is that some system should be completed which would render easy or certain the identification of a certain plant which is unnamed or, if named, to confirm that the name is correct.

Before we can go into this matter it is necessary to decide what should be the underlying basis of the key. I suggest that we should first decide what is a cactus plant. This is obviously a plant that has so adapted itself to its environment, which in this case is to prepare and defend itself against prolonged or less prolonged periods of drought, that it can survive such periods and, further, to so arrange its organisms that when it has been able to garner the requisite food in its restricted time of opportunity, to flower and fruit and so reproduce the species. That is to say, the degree of succulence is the cardinal factor which should be the basis of any key of any of the genera of cacti. I have already coined a new word, viz., "cactism" to indicate the degree by which the plant approaches the purpose for which the genus fulfills its status as a cactus. Therefore, the plant that is best provided to fulfill this cactism becomes a plant indicating the most extreme form of cactism so that the key must stretch from the plant with the least form to that with the greatest form of cactism, arranged so that it shall dovetail with the nearest other genus of cacti.

When this agreed, it is necessary to define the parts of the plant and to indicate the salient points of each part in its relationship to cactism. When this is complete the various plants should fall into their allotted place.

Let us now consider the various parts of a *Mammillaria*:

ROOTS. This part of a plant has received little, if any, attention and the general student and collector does not place sufficient emphasis on the importance of the study of the root. Hitherto, the root has been fibrous, thick or tap root, but my researches tend to prove that fibres simply are ancillary to the main root and their job is the actual water gathering while the main root transports the food and moisture to the internal organism of the plant. I have found that all roots can be classified as tap roots and non-tap roots. The tap roots are also divided into further sections comprising elongated, ball, tenon, and molar tap roots—these names provide a popular interpretation of their shape. I have also found that the molar type of tap root with its many-headed prongs represents that degree of extreme cactism that provides one end of our key and non-tap roots the other end, therefore, the tap roots are more extreme cacti than non-tap. A further matter of interest in the shapes of tap roots and providing proof of their cactism is that the bulbous portion, indicated by the names I have used, prove that the root is a storehouse of food.

SHAPE. The shape of the plant is of importance in deciding the degree of succulence. I have found that the elongated types show the least form of cactism and the low, depressed shapes the greatest degree. Therefore, *Mammillarias* can be divided into depressed with extreme cactism, and elongated at the other end of the scale.

TUBERCLES. In contradistinction to shapes, the tubercles show that the narrow cylindrical shapes are those which show the greatest cactism. All other shapes can

be classified under the heading *terete* with the least degree of cactism—terete covering all tubercles with sloping sides and it will be found that the dumpy, hemispherical and the many other descriptions are merely forms of terete tubercles, while the cylindrical types are a class by themselves and they align themselves well with other characters of plants with extreme cactism. Under this heading might be mentioned the *lactiferance*. It is not quite clear what is the exact relationship to cactism as, although all plants with extreme cactism have watery sap and are not milky, the elongated types also are watery and it is the medium globose types that produce lactiferance in the greatest quantity. The object of the milky substance is obvious to protect any wound caused to the plant.

AXILS. These depressions in between the tubercles are bare, woolly, hairy, or bristly. Obviously the more hair or other covering provided in these depressions the greater the ability to retain the moist atmosphere so that the presence of hairs and bristles in preference to abundance of wool denotes that the plant possesses the greater degree of cactism.

AREOLES. In contradistinction to the axils it is found that the smaller areoles correspond with those plants of extreme cactism, the reason being that large areoles retard the passage of moisture and the whole economy of a cactus is to hasten, absorb and utilize moisture as rapidly as possible.

RADIAL SPINES. It is my opinion that all spines are dried, twisted developments of leaves and their construction tend to confirm this. The larger, bare radials always go with tubercles that are not closely set and which show the least degree of cactism. It is found that radials covered with pubescence coincide with plants of extreme cactism. In considering spines, it is interesting to note that no *Mammillaria* has any hooked radial spines and all are provided, more or less, with minute protuberances which retard the passage of water. A further interesting matter to note in regard to radial spines and to which I have drawn attention two years ago, is the retention of the very hairy, immature "baby" spines on many plants in the form of a "beard," usually below the true radial spines, which must not be considered in the detailing of the spines except as evidence of the botanical persistence of these "baby" spines.

CENTRAL SPINES. The same remarks in regard to pubescence in relationship to cactism that have been given under radial spines apply also to central spines. The latter also are frequently hooked and the presence of the hook further indicates the degree of extreme cactism as against those plants with straight centrals and the least degree of cactism. Another fact which I also mentioned elsewhere two years ago, is that the hooks rotate according to the weather, turning inwards during rain after a period of drought and outwards when the plant is surfeited with moisture. Of course there are many degrees between the inner and outer movement according to the state of the individual tubercles. A further interesting point is that spines and their attendant areoles are not fixed to the tubercle by a spike into the point of the tubercle, but are attached by, shall we call it, a "gum" and can be detached with little or no damage to the epidermis.

I have found that flowers and fruits as well as seeds provide further evidence of the degree of cactism, but in a minor sense to the more stable parts of *Mammillarias*.

It is rather extraordinary how the dictum laid down in one section in one plant is confirmed by the dictum laid down in another section and I have little doubt

that the term "cactism" and what it implies is quite correct and that we are on the way, in this direction, to a better understanding of our plants. While the key is a quick and ready method of identification, it is important that such a key should not confuse any issue and should provide a botanical sequence that will be of scientific value even more than a convenience to the less experienced, enthusiastic collector.

It is obvious that such brief notes must necessarily deal with the points in an unsatisfactory way, but I hope I have indicated thoughts that will bear fruit at some later date. Research provides a wealth of detail in support of the ideas already given and I sincerely trust that my coined word "cactism" will find general acceptance as it so readily indicates a degree that is badly needed to explain facts that, up to now, have to be explained with many words and with little clarity.

E. SHURLY, March 1st, 1940.

EDITOR'S NOTE: We are interested in Mr. Shurly's conclusions after his many years of observing this particular group of plants. No doubt there will be other opinions and Mr. Shurly and your Editor welcome your comments. If this article stimulates action, then Mr. Shurly has accomplished his often repeated plea for help or active interest in this most popular group of cacti.

MAMILLARIA OR MAMMILLARIA?

From the *English Cactus Journal*, Dec., 1932

The above question arose at one of the Meetings of the Society and the former spelling was said to be an error. Memory fails one sometimes, but I was then of the opinion that the second alternative was the error. The spelling with the double "m," although incorrect derivatively, is undoubtedly right, as it was that of Haworth, himself, the author. [Haw. *Synopsis*, p. 177 (1812)]. Priority is the universal rule in dealing with Natural History Nomenclature, hence *Mammillaria* the name with the double "m," the prior name given by Haworth, is the spelling.

When Haworth wished to refer to the main character of the plants he was grouping, the "teat"-like, or "pap"-like covering, he did not choose the appropriate Latin word "mamilla"—a breast, pap, teat, but coined his genus "Mammillaria," from the Latin word "mama"—mother.

Most "cactus fiends" have referred to the "mam-mae" of the *Mammillaria* instead of the strictly correct term "mamillae."

I have looked up the following authors in my library, all of whom spell the name with one "m":—Forster (1846); Salm-Dyck (1850); Engelmann (1858); Labouret (1858); Watson (1886); Schumann (1898); Schelle (1926); Berger (1929); Guillin (1931). Hence those of us, who have erred, have done so in good company.

NOTE.—Schumann (1898) in his reclassification uses the derivatively correct *Mammillaria*, and places his own initials to the description; *Mammillaria* K. Sch. (1898). HY. J. TURNER, F.E.S., F.R.H.S.

And from Stanford University, John Poindexter sends the following:

"Yesterday I just happened to be talking to our Dr. Smith about *Mammillaria* and so we looked up the whole story from the algalogist's point of view.

"In 1807 two genera of algae—*Gigartina* and *Mammillaria*—were established by Stackhouse. For some reason or other the second name never came into use; probably the distinction seemed too fine. The fact that the name was not in general use is shown in

several early monographs where it is not even listed in the synonymy. Two of these books date between 1820 and 1825. In some more recent works, which precede Britton and Rose, however, the genus was listed in the synonymy. That being the case, it makes Br. & R. look like extreme purists, since the name was obsolete when they were working on *The Cactaceae*."

From the Study of Cacti—Higgins

"This name is variously spelt *Mamillaria* (by Schumann and others) or *Mammillaria*; Britton and Rose added the prefix *Neo* because the name had been used by Stackhouse (1809) for a genus of Alga before Haworth (1812) used it for the well-known genus of cacti. According to the International Rules the correct form is *Mammillaria*. Haworth took the name from *Cactus Mammillaris* of Linnaeus; in the sixteenth and seventeenth centuries the Latin word was spelt either *Mamilla* or *Mammilla*, so that Haworth's use of the double letter is not a typographical error which under the rules could be corrected. In 1812 Dalla Torre et Harms "corrected" a number of names which they considered to be wrongly spelt and so the form *Mammillaria* came into use; there is no authority under the rules for this correction and the name therefore stands as originally written by Haworth "*Mammillaria* Haworth." In adding the prefix *Neo* Britton and Rose followed the American Code by which a name once used could not be used again for a different genus; the International Rules, however, put this name among the *nomina conservanda*, that is, the name should be retained in spite of the priority of its use for an alga, since it had become well known. At the meeting at Cambridge in 1930, the former American Codists agreed to accept the conserved names which include *Mammillaria* Haworth, and this is the form that should be used."

From International Rules of Botanical Nomenclature: (Citation Number 5411)

Nomina conservanda:

Mammillaria Haw., *Synops. pl. succ.* (1812) 177.

Nomina rejicienda:

Cactus L., *Gen. ed.* 1 (1737) 139 L., *Spec. pl. ed.* 1. (1735) 466.

THE END:

FROM MINNESOTA

Seedlings of *Astrophytum capricorne*, *Hamatocactus*, *Homalocephala texensis*, *Echinocereus* of several kinds, all no larger than a pea, were stored in a cool dark basement from Oct. 13th to April 1st.

The temperature ranged down to 35° for the most part of the winter. They received no water during that time and the loss in plants I would say was about 2 percent.

The *Astrophytums* started to shrivel the last month but revived on being watered carefully when brought out in the light again.

FRED SCHOENBERGER, Saint Paul, Minn.

FROM A PASADENA PAPER

"Flowers replace spines—By grafting a bud from a flowering *Kaiserin* succulent on a prickly pear stalk, Charles Burns has developed a specimen that grows beautiful pink blossoms instead of spines. The blossoms attract the bees which find the blooms full of nectar."

EDITOR'S NOTE: A choice example of the usual misinformation valuable for another laugh.

The following 8 pages are the 5th Installement of the monograph "Colorado Cacti" by Dr. C. H. Boissvain.

Results From a Cold Winter

FROM FLORIDA

After our most severe winter in sixty-five years, I wanted to let you know how my plants came through. They were all put in my waxed, cloth-covered house with two large lanterns to keep them warm and were doing well until the cloth was torn off by hard winds. The coldest weather we had was followed by hard rains. The plants were exposed this way for several days before the house could be fixed.

Some of my succulents and just a few cacti were lost. I think the hard rains caused me to loose the cacti. All my *Ceropegias* were killed, a *Hoya*, a lot of *Aloes*, and a nice *Escheveria Hoveyi*. One I regretted losing most was a *Pereskia Bleo* that bloomed for me last year.

It was very discouraging with my little greenhouse ruined and my plants such a sorry sight. But as soon as the weather was a little warmer, the desire came back to go on, and I spent my whole year's allowance for clothes, shows and everything, on a real glassed-in house that will keep my plants next year.

Every day is a new thrill, for some plant starts growing that I had thought dead. They seem as proud of their new home as I.

My one *Dudleya* is growing and was not hurt by cold or wet. Almost all the plants you sent me are doing well. I'm so proud of them.

MARY WISE.

A GREAT FROST AND AFTER

During January of this year the whole of Great Britain was subjected to a frost of greater severity than any that had been experienced for over forty years. In our garden, plants which we have always considered to be perfectly hardy have been killed or seriously damaged. Lavender, rosemary, thyme and sage have been killed outright in my own neighborhood. Meanwhile the temperature has fallen so low that considerable damage has been done to the more tender subjects in greenhouses.

My collection of cacti is housed in a wooden greenhouse ten feet wide by fifteen feet long, heated by a coke stove and water pipes along one side and one end. I do not aim at keeping a high temperature and I am satisfied if I can keep up a minimum of 40° F. at night.

On the night of January 20, which was the coldest in my experience, the registering thermometer in the greenhouse fell to 20° F. although the water pipes were warm and the fire still burning in the morning. Fortunately, the cacti had had no water for about three months so the effect of the frost was reduced to a minimum. A pineapple plant collapsed at once, but the cacti were some time before showing any effects. *Lemaireocereus Dumortieri* was the first to go after about a week, and a fortnight later *Ferocactus corniger* turned brown at the top and in a few days became a total loss. *Mammillaria occidentalis*, *Pilocereus chrysanthus* and *Ferocactus flavovirens* soon followed. I was particularly sorry to lose the last as it was a nice specimen and the spikiest cactus I had. *Lemaireocereus Weberi* was also caught but a surgical operation appears to have saved its life. One large cream-flowered *Phyllocactus*, a few seedling cacti and a few other seedlings complete the tale of slaughter. A four-year-old *Tavaresia grandiflora* was also damaged but I am still hoping that it will recover.

The rest of my collection, which consists of about

three hundred different varieties and innumerable seedlings, stood the frost very well and I am now enjoying a good display of bloom. The following is a list of plants in bloom or in bud at the time of writing (May 22, 1940):

Mammillarias microbeliopsis, *conspicua*, *sempervivi*, *Woodsii*, *melispina*, *Mendeliana*, *campotricha*, *cephalophora*, *Hoffmanniana*, *Schiedeana*, *Wildii*, *viridescens*, *Werdermannii*, *Luevedoi*, *Bravoeae*, *pusilla*, *gracilis*, *mystax*; *Aporocactus flagelliformis*, *Ferocactus latispinus*, *Strombocactus turbiniformis*, *Telocactus longicornis*, and *Lophophora Williamsii*; several seedling *Gymnocalycium* and a large number of *Rebutia minuscula*. The last are making a really wonderful show. I am getting up to eighteen blooms per plant on seedlings three years old. Twelve plants in a nine-inch seed pan have been one mass of bloom for the past three weeks.

Phyllocacti have gone very red but they also are showing a lot of bloom.

I think the list of flowering plants is sufficient proof that my collection as a whole has stood the trial well but I shudder to think what would have happened if I had been tempted to use the watering-can during the milder weather we had at Christmas.

WALTER WINKS STRAW, England.

FROM TEXAS

The cold weather last winter (7 above zero) played havoc with my plants, ruining many that had been perfectly hardy heretofore. And since I was out of town at the time, nothing was done to protect them or move them inside. I lost my entire collection of *Haworthias* and *Euphorbias*, and most of the *Escheverias*.

Here's hoping we have no more such weather for another hundred years.

PRICE CROSS, Austin, Texas.

HARDY CACTI IN OKLAHOMA

List of cacti that are hardy here in north central Oklahoma and that have lived through two winters outdoors, unprotected.

Echinocereus dasyacanthus, *E. Reichenbachii*, *E. chloranthus*, *E. enneacanthus*, *E. Baileyi*, *E. octacanthus*, *E. Rosei*, *E. triglochidiatus*, *E. viridiflorus* "var. from New Mexico," *E. perbellus*; *Echinocactus horizontalis*; *Coryphantha Runyonii*, *C. pectinata*, *C. echinus*; *Echinomastus intertextus*, *E. erectocentrus*; *Ferocactus uncinatus*; *Homalocephala texensis*; *Mammillaria lasiocantha*, *M. applanata*; *Neobesseyia missouriensis*, *N. similis*; *Opuntia vulgaris*, *O. leptocaulis*, *O. imbricata*, *O. fragilis*; *Telocactus bicolor* "var."

J. W. SKINNER.

I tested the following plants for hardiness last winter in Connecticut:

Echinocereus viridiflorus, condition perfect; *Opuntia fragilis*, unscathed; *O. compressa*, unscathed; *O. basilaris*, unscathed; *O. aurea*, unscathed; *O. polycantha*, rotted slightly, doesn't like moisture; *O. erinacea*, perfect; *O. camanchica*, perfect; *Coryphantha vivipara*, perfect; *Neobesseyia missouriensis*, O.K.

The weather was terrible here and I can truly say the above plants are really hardy.

I expect to test about fifteen other cacti including all *Neobesseyas* and many *Echinocereae* next winter.

RICHARD JACOBS.

FROM OKLAHOMA CITY

Last January we had temperatures near the zero mark for 27 days. I lost a number of plants that we considered hardy: *Opuntia linguiformis*, *O. stenoclada*, *O. Pottsii* and a spineless one. A pink flowered one from near San Diego came through fine. Lost lots of the *Echinocereus* and many of our natives.

MRS. HARRY T. JOHNSON.

FROM EDINBURG, TEXAS

Last winter we had the coldest weather in about 16 years; the thermometer went down to 26 and the cold spell lasted for 7 days. We believe we have lost one-third of our plants, but, of course, the large majority of our loss was in succulents other than cactus and are easily replaced. We lost one *Euphorbia lactea* 16 feet high.

FITZPATRICK'S CACTUS GARDENS.

FROM KANSAS CITY, MISSOURI

We certainly had a hard winter here. We lost most of our plants that were outside, even plants that had wintered over before. However, plants wintered in a lean-to house from the basement, without heat other than from the basement, came through fine.

We kept the plants in our greenhouse cool this year and for a reward we have hundreds of plants with from one to thirty or more buds and blooms. By all indications we should have an exceptionally good blooming season here.

We are starting construction of an 18x48 foot house and a display house. These houses should greatly add to our accommodation of plants here.

June 27, 1940, a three-year-old plant of *Selenicereus grandiflorus* bloomed for us. Two blooms opened up at the same time. Fifty-five friends saw the plant in bloom that night. It has two more buds that should open soon.

We have just had a new stoker installed under our boiler.

QUALITY HILL CACTUS HOME.

FROM SOUTH AUSTRALIA

I suppose you would like to know all about the situation, climate, temperature and other problems I have had to overcome.

Belair is situated about ten miles southeast of Adelaide about 1000 feet above sea level. The climate is ideal and we can grow plants (annuals) all the year round that only grow in Adelaide for a few months in the year. The rainfall is about 25 inches, about 18 inches falls between June and September, so that you can see that seven months of the year it is comparatively wet. The winters are not very severe, temperature seldom below 40 degrees, and the rainfall is steady; the summers are hot, temperature often well over the hundred degrees. However, we have four distinct seasons: Autumn (March to May); winter (June to August); spring (September to November); summer (December to February). I have noticed this, that during one year we have two distinct growing seasons, and in the short time I have been collecting, some of my plants have become very attractive.

I have had to trench my rockery on account of large amount of clay in the ground, and this has been very successful. I mixed about five tons of sand with about the same amount of soil and some gravel. The results are very pleasing as last winter was more severe than usual, and I did not lose one plant.

CLIVE A. L. WILLIAMS.

SEATTLE NOTES

I am getting all of my plants moved into tarred cans, using gallon fruit cans, two pound coffee cans, and a narrower juice can. All are the same height, so that it gives my plants the same ground level, and the effect is very pleasing. Several things about cans appeal to me: in the larger sizes they are not as heavy as pots of comparative size; in the dry atmosphere of our homes, evaporation is so great in clay pots that it has a chilling effect on the soil and this is greatly cut down in cans; where I planted a shallow rooted plant in the wider size cans, I used an inverted pot in the bottom to cut down on both weight and the amount of soil.

MRS. HARRY H. LEWIS.

MAYBE, BUT WE DOUBT IT

Dear Sirs:

I am very anxious to know if there is any money in cacti and succulents for the amateur, also if any of them make acceptable rabbit and chicken feed. I have a chance to get some very cheap land at Banning, Calif., but water is high there; cacti and succulents would furnish a way out of the difficulty if I could sell them to easterners who go through. A good location, on the transcontinental highway and railroad line. Whom can I write relative to dollars in cactus? T. B. D.

FROM MILWAUKEE

Max Jaehnert recently broke into print in a local newspaper with photos and publicity that would make a commercial man envious.

This collection of over 600 specimens includes 400 different species. Mr. Jaehnert is a tool and die-maker by trade and has been interested in cacti for twenty-five years.

"His plants are grown in a home-made greenhouse measuring 12 by 18 feet. It is heated during eight months of the year by an old-fashioned coal heater. The collector says that in zero weather the frost forming from the moisture-laden air touching the glass makes the greenhouse an ice palace.

"The plants are kept in earth beds raised from the floor. Some grow directly in this earth, others, which require special earth, grow in pots. All are tagged and catalogued, although the collector can call them all by their scientific names and describe their characteristics.

"A branch of the Cactus and Succulent Society of America meets in Milwaukee. There are 15 members in the group, which is limited because members meet in each others' homes."



THE CACTUS BOOK

by
A. D. Houghton

From this book you will learn the secrets of successful watering, how to grow Cacti from seeds, how to propagate the rare species by grafting, how to hybridize, how to grow indoors in pots, and on window sills, how to purchase and trade to get new sorts and what kinds to grow for different effects. Also introduces you to more than 1,000 different kinds of Cacti with information for selecting the types you need for every purpose and location.

Cactus & Succulent Society
of America
Price \$2.25

Box 101, Pasadena, Calif.

WASHINGTON CACTUS AND SUCCULENT
SHOW

July 30 to August 3

We very much appreciated the folders and JOURNALS which arrived in time for our show. They worked in nicely, because this year we featured our library, which was displayed in glass cases, furnished by Frederick & Nelson's.

Although attendance fell just a trifle short of last year, we noticed that people came more for information and less out of curiosity. Our publicity was excellent. Pictures of our club officers were used. Mrs. Bert Williams, our publicity chairman, used various ideas in writing up her publicity. One set publicized our library, another the arrangement of the show, and in still another set many of the plants themselves were featured. The store, in which the exhibit was held, carried two nice ads. This same publicity was carried in the large downtown dailies and many of the larger district papers.

Some of the newer and smaller clubs, like our own might be interested in the way we are putting on these interesting exhibits.

Last year, when we planned our first show, we naturally wanted to do it as cheaply as possible, since our club is limited to amateurs. Our main difficulty was to find a suitable place that was easily accessible to the public. Mrs. Earl Gorgen, who has been active in garden club work in Seattle, suggested that Frederick & Nelson's auditorium was available to clubs for free displays. When they were contacted, they gladly offered the auditorium and also offered us every cooperation to make the show a success. Last year our only cost was for the rental of a canvas to put under the garden. I think this amounted to about \$4.50. This year we are having a picture taken, so it will run a little more.

Plants are delivered to the basement. The store janitors truck them up. The store rents the sand, which of course, can be returned. They lay the canvas and the framework for the garden, place and cover the tables, and do any other work that we want done. We arrange and dismantle our own exhibit. With the aid of the store janitors we are completely moved out in less than two hours, in spite of the fact that we have to take time out to talk to people who come in late. All plans for the show are carefully laid out ahead of time, and someone from our club is delegated to work with the auditorium manager.

Last year a local artist had used the auditorium the week before our show to display her Indian portraits. It worked in so well with our show that we asked that they be left during our week. This she gladly did.

This year, Mrs. Lyons, the auditorium manager, arranged to have desert paintings by Washington artists hung on the walls. Navajo rugs were used on some of the larger wall spaces. The stage was set with garden furniture and an outdoor fireplace. In localities such as ours, where large desert plants for background purposes are not available, these extra "props" are much appreciated. It takes away the coldness that a large room would otherwise have.

The show was much the same as last year, only perhaps a little more elaborate. This year we did not ask the commercial men to display with us, because we needed the wall space for our own special displays. We used the same large garden, about 15 by 27 feet, arranged directly under the fashion show flood lights. With the brilliant lights overhead, this garden is the focal point for people entering the auditorium. Our largest plants are placed in this garden, and this year they were arranged in colonies from the states or countries from which they came. Inconspicuous pla-

cards marked these colonies and visitors found it very interesting.

The tables arranged around the wall space were draped to the floor with light blue burlap and held our special displays. On these tables were such exhibits as tiny potted seedlings, grown by some of the members, ingredients that go into a proper soil mixture, a table of plants suitable to the beginner, another table of the more rare and beautiful plants. There were two tables devoted to succulents other than cacti, a table of crests showing also their normal forms, and a table showing the methods and results of grafting. All of these specimen plants carried the plant names and localities from which they came, done in India ink on three by five cards. These cards and any others that were needed to explain our displays were done by the store.

Mrs. Ridgway's interesting collection of Sajuaro scars and a specimen plant occupied another table.

Two interesting windows with glass shelves decorated in the same shade of blue as the table coverings were arranged on the two long walls and backlighted to give the effect of sunshine streaming through. This made an interesting place to display the smaller plants in ornamental pots.

Two hostesses are in charge at all times and a guest book was placed conveniently near the exit for visitors to sign. Last year we had many visitors from foreign countries, but this year practically none. We find that garden clubs in smaller towns are devoting some study to succulent plants, and some of these people were in looking for ideas and information.

Our last year's president, Bert Williams, was general chairman. He made all of the downtown arrangements and wrote and gave two radio talks. He gathered up the rocks and transported them to the store himself. A great many of the plants were taken to his home on Sunday and moved down in a large van furnished by another member, Arman Favro, on Monday morning. Bert and Mr. Favro spent the entire day doing the heavy work needed in arranging our plants.

We are often asked how such a young and comparatively small group of amateurs can put on such an elaborate display, so I have gone into detail, hoping that it might help some other new group to take advantage of the possibilities offered by their own local stores. It is a pleasure to work with these people, because they have trained persons in charge who can work out our own ideas better than we could do it ourselves.

Our shows are not competitive. The only idea in giving them is to meet and promote interest among the public. Chairs are conveniently arranged about the various exhibits, and each display is surrounded by heavy chains on posts that keep the public from handling the plants. Some people spend hours, and others came back many times during the week.

Plants placed under the floodlights will open their flowers, and while the flowering season is about over we had a few in bloom.

What a remarkable list of crests Mr. Mark has! (Jour. Vol. XII, pg. 109.) And what a show they would make. Cristates develop in nature and until the exact cause is known, I do not see why people want to ridicule them. Cacti, as a family, are known to change their form of growth to meet their conditions, and if they wish to develop monstrous and crested forms that privilege should be granted them. I fail to see anything sickly about them. Many of them grow faster than the normal forms do. I have had *Mammillaria woburnensis* crest in my collection this year and I note that Mr. Mark does not list it among his plants.

MRS. HARRY LEWIS, Seattle.



1. Mr. A. F. Williams is a 70-year-old collector in England. 2. A pink *Epiphyllum* in the same collection. This is one of the most satisfactory cacti for localities lacking strong sunlight. 3. Mrs. Waterman of Auckland, New Zealand, is one of our most enthusiastic members and has one of the largest collections. 4. Mr. C. W. Armstrong proudly takes his cactus for an airing on a busy street in Vancouver, B.C. 5. Prof. Arthur Blocher challenges Society members to produce longer rat-tails. 6. John Ebert's glasshouse in Frederick, Md. It is well ventilated and protected from the burning summer sun. 7. John G. Deserve, Maine, plunges his pots to make a most attractive summer rockery. This part of the United States has only three months between frosts and during the balance of the year the plants must be grown under glass.

FROM ENGLAND

I feel that the delights of cacti and succulent growing are so satisfying that one is impelled to do what one can to encourage others to go in for it. So I am in hopes that these few lines from far-away Wiltshire in England will do something to carry on the good work.

Some 10 or 12 years ago on old friend and cactus grower, of some 30 years experience, remarked to me "That what a man in business should provide for, in good time and whilst he had sufficient spare energy to do so, was a hobby, which once started, would to a great extent run of itself and provide a solace and recreation in those days when one needed to take things easier."

I took the advice given and as he kindly gave me 40 plants for a start, I added to these from time to time. As we have not the climate of California, a greenhouse was needed, and I appropriated a house 30x18 feet and have now filled it. I laid out a rockery down the center for planted-out specimens, and a four-foot stage of corrugated iron around the sides covered with shingle and ballast for those in pots. The first few years a pound or two spent on best kinds, combined with some seed raising which when plants were large enough were exchanged for specimens in 4 inch pots.

Sometimes we met folks on our travels who had one or two specimens, not enough in number to make them really keen, who gave them to us as we most naturally promised a *good home* and care to all we could get. Then again when in other districts we made a point of calling on fellow members of our Society who appreciated our interest and at the close of our call generally wound up by asking if there was anything we would like. So now we have accumulated a most satisfying lot, which if we did not give away in our turn would cause a serious housing problem.

So now our little house contains many mementos of people who gave us help, and reminders of happy excursions gone by.

I once sent a snap of myself in my little house to a German friend. Writing to thank me, he said he was pleased to see me amongst my silent friends, which to my mind is a most apt and appropriate way of looking on the plants.

Sitting in the house as I am now, it is hard to say which you like best. Your idea of specifying the 12 sorts you like best is a teaser, I love them all. Certainly to a certain extent it is a matter of reciprocity, those which respond most readily to your treatment and conditions, stand first with you.

I once called on a lady, who in taking me to her greenhouse remarked somewhat dolefully, "I lost my old man last week." I naturally felt somewhat embarrassed, and looked my extreme sympathy, thinking what a strange remark to make to a stranger, but on arriving at the house my gloom was dispersed on finding the "Old Man" referred to was *Cephalocereus senilis*. On examination I pronounced him "quite dead."

At the present moment my house is bright with many blooms of *Echeveria*, *Gasteria*, *Sedums* and the earlier *Phyllocacti*. Referring to favorite kinds of cacti and succulents, I think the *Euphorbia* family have much to be said for them; it is true the flowers of the greater portion are neither so many, nor so attractive as some cacti, but then they have so many beautiful and distinct forms; and again in their favor, is to be mentioned their almost complete freedom from insect pests. It comes at times somewhat of a shock to find one of your most lovely and attractive plants to be thoroughly infested with mealy bug or scale.

One of the uses to which cacti may be put is to make a striking and unusual display in your front garden. Plants that have been in a stagnant condition for years past seem to get well and grow out of all recognition—possibly the warm days and night dews have a stimulating effect on them. Many have flowered that had not done so before. We put them out in the middle of May until October. Plants were simply plunged up to rims of pots.

The articles in the *JOURNAL* on cacti bowls were of great interest to me. The different groups and combinations one can make are endless, and quite a delight both to do and present to appreciative friends.

ARTHUR F. WILLIAMS.

March, 1940

HEATING CACTUS ROOM

In reply to Miss Mulcahy's question in the August *JOURNAL*, there has been some discussion in our club regarding the heating of such a place. The first consideration is the type of heat and the hot water system gets the nod without a murmur. A heater of the ordinary type seems to be enough for the heating of the water provided it is well vented. This is very important because of the damage to the plants by any gas. A thermostat is indispensable and should be set "on" at 50 degrees F. and "off" at 60 degrees F. No water should be given the plants during December and January, once in February, twice in March, and plenty after March 21st. If the temperature goes ten degrees lower than the above, no damage need be expected and more blossoms may result.

I have a *Cactus intortus* that is supposed to have a minimum temperature of 60 degrees but we had 48 degrees here last week and my plant has had not less than four blossoms daily. Low temperature had no visible effect. The plant has four buds which are waiting for the rain to stop so they can open this afternoon. Never blooms in the morning.

The August issue is full of interest to me. Wish you could start at the first of Britton and Rose and go all the way through in the manner of the article by George Olin. Even start with the plant that comes before the *Pereskia* relationship.

CHAS. R. COLE.

LANDSCAPING WITH CENTURY PLANTS

Past President Charles Gibbs Adams recently crashed the Saturday Evening Post with an article in color entitled "Gardens for the Stars."

Speaking of Mr. Hearst's San Simeon estate, Mr. Adams says, "Along the six-mile drive from the seaside to the summit, you ride past herds of antelope and gazelles, sacred white deer of China, gnus and yaks, zebus and zebras, buffaloes, bison, kangaroos, llamas and giraffes—in short, virtually the whole animal kingdom, living contentedly in the natural state on the grassy slopes. This is delightful for Mr. Hearst and his guests, but not for the landscaper.

"When we tried, for instance, to transplant the century plants that Mr. Hearst wanted, a strange feud broke out between them and the nilgai antelope from India. Just why, I don't know, but the antelope took offense at the great clumps of plants we brought from the Mexican border and acclimated on the hillsides. Evidently cut by the sharp thorns, they thought the century plants had attacked them. The animals shredded the plants with their horns, until we set guards over the plantings. Then they came at night and finished the destruction, even to digging out the roots with their sharp hoofs."

ARE YOU A COLLECTOR OR A KEEPER OF CACTI?

Before getting too far along with this interesting business of raising cacti, or any other succulent for that matter, it might be well to sit down and analyze your situation and just what these plants mean to you. I mean whether you want them for ornamental purposes or whether you want to build up a really fine collection of living plants. If you are trying to make them bow to your will, by thinking of them in terms of pretty pots and what they will do for that unattractive window, without regard to some of their own requirements, don't try to be a real collector.

Choose, rather, those plants that appeal to you for the moment and be willing to replace them when they die. Plants can do only one of two things. They are going to sit still and eventually die from improper care, or they are going to grow more beautiful each year because they are receiving the kind of treatment *they like*. They will bow to your will only as long as you show a willingness to understand and anticipate their needs.

The plant receiving no sunshine cannot be expected to respond as well as the one receiving three hours daily, and the plant receiving three hours of sun won't show the growth and vigor that the one receiving ten or twelve hours of sunlight will show.

And along with sunshine, spines and flowers will be better if the temperature is raised to 80 or 90 degrees. But do not combine a high temperature and shady conditions for sun-loving plants.

If you were buying nursery plants for landscaping purposes, you would certainly consider the situation and soil requirements before planting. Sun-loving plants won't thrive on the north side of the house and this should be kept in mind when establishing a cactus collection.

If you are a real collector, you won't try to build up a beautiful collection overnight. Don't buy more plants than you can care for. Be willing to spend some money on a proper place to raise them. It will be money ahead in the long run. As they are not native to our climate, it will be necessary to try in some degree to duplicate their native conditions, by providing some sort of frame or sunny warm room for their growing season to induce flowers.

Plants should be thought of as any other nursery stock. Are they going to increase in beauty each year or are they going to deteriorate? It depends on the intelligence of the collector and what the plant means to him. Are you willing to cut up a plant and re-root or re-graft to improve its appearance? Are you willing to ana-

lyze and fight an invasion of pests until you have conquered them? Are you willing to forget their uniqueness and use a little common sense in caring for them? If so, then you are bound to succeed. Others may be able to give you many helpful tips, but it is up to you to work out your own problems.

Cacti reflect the kind of care they receive as much as any other plant, and they respond to treatment just as readily. So decide whether you want to be a collector or a keeper. There is a vast difference.

MRS. HARRY H. LEWIS, Washington.

SOUTHWEST CACTUS GROWERS

The Southwest Cactus Growers meet every Tuesday, 8:00 P. M., except the third Tuesday of the month when they meet at 7:00 P. M., because of pot-luck supper.

As always, the meeting place is the Manchester Playground, 8800 South Hoover Street, Los Angeles. This is just south of Manchester Blvd. on Hoover Street.

The first Tuesday of the month is devoted to a plant naming contest and business meeting. The "Growers" are divided into two teams for these contests. At the end of an undetermined period the losing team will treat the winner to Ice Cream and Cake.

The second Tuesday of the month is trading night. This is more or less self explanatory. Members bring plants, rocks, pots, pictures or other things pertaining to a garden, and then try to trade with someone else.

The third Tuesday of the month is pot-luck supper. On August 20th, there were colored motion pictures of the recent Los Angeles Cactus Show, presented through the courtesy of Mr. Harry Beam. Also Mr. Fred Gibson, Director of the Boyce Thompson Arboretum, presented colored slides and a talk "A Plant Travelog Through Arizona."

The fourth Tuesday of the month is Beginners Night, with special attention paid to the beginner in collecting. Mr. George Olin will continue his talk on plant grafting which proved so popular last month.

The annual exhibition of plant photography, of the above group, will take place at the Manchester Playground before and including Armistice Day—Saturday, Sunday and Monday, November 9th, 10th and 11th. The schedules will be available soon after September 15th and all entries must be presented to the Show Committee on or before October 30th, at 12:00 P. M. Those interested should contact the Show Chairman, Mr. Waldie Abercrombie, 3813 Broadway, Huntington Park, California.

E. S. TAYLOR.

Chairman Publicity Committee.

PICTURES WANTED

I'm making a scrapbook of garden scenes and want them from all the states. I haven't any from the western states. I am especially anxious for some of cactus gardens. I don't want newspaper prints, but prefer kodak pictures. I have small ones and large ones. I can send in return pictures of parts of our garden such as iris, Regal lilies or others. We have a lovely garden, but I am interested only in cactus—this is my hobby and my book is only a personal scrapbook. If you can insert this, I will be thankful.

MISS LOIS McMILLAN, Palmetto, Ga.

"They fiddle with the works of God
And make them look uncommon odd"

—or do they?

Definitely intriguing and stimulating are the contributions on hybrid, grafted and monstrose forms of succulent xerophytes, by Mrs. J. Russell and Mr. Harry Johnson, published in the July and August numbers of the JOURNAL, respectively.

In the periodical literature of today readers must condone far too much of platitude and generalization. But here we have—and in what generous portions!—that most delightful and helpful of literary preserves—honest and courageous difference of opinion, honestly and courageously expressed!

Other readers of the JOURNAL will have shared my amusement on noting that along with Mrs. Russell's masterly presentation, the July JOURNAL carried a most lavish display of choice grafted, cristate and monstrose cacti! Coincidence, of course, but how interesting.

One cannot but be impressed with the botanical knowledge displayed by Mrs. Russell in presenting her thesis, together with her ability in organizing her subject matter. We long have been aware that our own Harry Johnson knows his plants; and now we learn that he also is a classicist of no mean order. It is obvious that he not only is capable of delivering tirades and invectives or, if necessary arises, philippics as well!

Personally, joking aside, I feel that there is a middle ground in this friendly controversy. As to hybrids: while everyone knows that a vast number of hybrid garden plants and flowers "never should have been born," yet we must admit that our gardens today would be much poorer without the many superior hybrids

available. Who, for example, would deny that certain "succulent" hybrids, as in *Echeveria*, do not possess qualities lacking in the parental forms? Finally, my own rule is that unless a hybrid gives me something not to be had in a species, I have no place for it. There already are more good things than any one of us can hope to grow.

Resort to grafting to expedite growth and flowering certainly is justifiable, particularly with dealers and advanced collectors. However, despite information as to grafted plants, furnished by the Society through its JOURNAL, books published under its auspices, and a free regrafting service, numerous collectors remain ignorant of the transient nature of most grafted specimens. They purchase plants, only to lose them after a year or two and, naturally, are disappointed. It would seem only reasonable to suggest that dealers either acquaint purchasers with facts, and that when practical, grafted plants be placed on their own roots.

Cristates and monstrose forms will continue to be in demand, but their present popularity probably will wane, because of growing appreciation of the normal in nature, and from the fact that many plants in this class do not thrive unless grafted. In assuming that "unnatural" plant forms will decrease in favor, I may be mistaken. My only basis for such an assumption is that far fewer persons come to our Museum nowadays looking (in vain) for two-headed calves and three-legged roosters!

H. C. SHETRONE.

Ohio State Archaeological and Historical Society.



HOW MANY DO YOU RECOGNIZE?

Echinocereus Reichenbachii (collected)
Mammillaria bicolor
Oreocereus celsianus
Lophophora williamsii (collected)
Mammillaria elongata
Cephaelis senilis
Mammillaria pygmaea
Espositoa lanata

Haageocereus acanthurus
Echinocereus Baileyi
Cereus hybrid
Lobivia samatimensis
Dendrocereus nudiflorus
Echinopsis calochlora
Mammillaria camptotricha
Neoporteria Jussieu

R. W. Kelly states that the ages of the seedlings in this picture vary but most are about three or four years old. Some are rooted cuttings and collected plants.

If you know your cacti, you will recognize that this group was arranged by Mr. Kelly for the varied colorings in the plants themselves. The golden spines contrast with the whiteness of others while the beauty of blues, greens, and reddish hues are beyond description.

HUMMEL'S EXOTIC GARDENS

"The Cactus Emporium"

4848 W. Imperial Highway Inglewood, California

Cleistocactus Strausii, perfect specimens, snow white variety, 18 inches high.....\$5.00
Parodia Maassii, beautiful golden brown, curved spines, exceptional specimens, grafted..... 1.50
Parodia mutabilis, one of the most beautiful.... 1.50
Parodia chrysacanthion crest, one only..... 5.00
Echinocereus knippelianus, grafts..... 1.00
Chilena atropina, very rare..... 2.00
Morawetzia doelziana crest, 2 only..... each 7.50
Echeveria subrigida, rare, formerly \$1..... .25
Stapelia desmetiana, red flowering, hairy..... .25
Stapelia gigantea, purple..... .25
Stapelia pulchella, beautiful, short, purple mottled stems, prolific bloomer..... .35
Caralluma europaea..... .25
 Usual Discount to Dealers Prices Express Collect

MEXICAN CACTI AND OTHER SUCCULENT PLANTS

Specialty: Specimen and Show plants.
 Business is done strictly in accordance with the Mexican Cactus Law.

FERDINAND SCHMOLL
 Cadereyta, Qro., Mexico

WANTED

Cactus and Succulent Journal Vol. I, issues 6 and 9 (Dec., 1929 and March, 1930). We need two copies of each. Box 101, Pasadena. Will pay \$1 each.

Cactus dealers in Arizona, Nevada, Utah, Colorado, and Oklahoma, please contact W. D. De Long, Box 1251, Albuquerque, New Mexico.

SPECIAL BARGAINS

Sempervivum Lowni No. 60, 1½ in... .15
Haworthia retusa, 1 in..... .50
Haworthia laetivirens, 1½ in..... .15
Echeveria purpusii, 2 in..... .25
Pleiospilos nelii, 1 in..... .15
Sedum confusum, 2½ in..... .10
Sedum oxacanthum, 2½ in..... .10
Dudleya caespitosa, 3 in..... .10
Astrophytum asterias, 2½ in..... .25
Notocactus apricus, 2 in..... .15
Echeveria derenbergii, 2 in..... .15
Rhipsalis paradoxa, 3 in..... .25
Rhipsalis rhombea, 2½ in..... .15

Prepaid on orders of \$1.00.

Send for List 58, 59 and 61.

CHAS. L. CASS NURSERY
 North San Diego, California

FROM TEXAS

In a letter received from Wm. Triebner he states that *Haworthias* in Africa stand "minus 1 degree Fahrenheit" temperature. I lost my entire collection of thirty named varieties and many unclassified plants when our temperatures went to 10° above here in January. I am wondering if he meant just what he said.

PRICE CROSS.

Very few *Haworthias* will stand temperatures below 26-28° F. in cultivation, although no doubt, where growing in their natural habitat and extremely dry they are able to withstand lower temperatures.

J. R. BROWN.

COMMERCIAL DEALERS

CAULITY HILLS CACTUS HOME
 CACTUS AND SUCCULENTS

559 Evanston Ave.

Kansas City, Mo.



CACTUS SEED

AND PLANTS SUCCULENTS

Hundreds of rare species of seedling and large specimen plants. Ask for our illustrated plant catalog, also seed catalog. Cactus Seed—Amateur's Surprise Packet—100 mixed seed, easily grown species, carefully selected, 25c.

R. W. KELLY

2410 La Rosa Drive, Temple City, Calif.

12 large native cacti, botanically labelled, no two alike. \$1.00 F.O.B. Eastland, Texas

EXOTIC PLANT CO.
 Eastland, Texas

SPECIAL THIS MONTH PREPAID \$1.00

Choice of any two of the following or all 5 for \$2.00.

Mammillaria Pringlei, 3 in., Golden spines.

Mammillaria Pfeifferi, 3 in., blooming now.

10 in. *Cereus peruvianus* monstrose, very monstrose and branched.

12 in., many stemmed *Opuntia Braziliensis*.

8 in., many stemmed, Xmas Cactus (*Zygocactus truncatus*).

The above are better than bargains and will not likely be offered again. Free new illustrated catalogue.

KNICKERBOCKER NURSERY

Route 3, San Diego, Calif.

Californians include 3% tax please on all orders

Our price list is now ready for distribution. Gives blooming period and color of flower of each variety. Also some very attractive offers. Wholesale and retail. Drop us a card for our list.

A. R. DAVIS

P. O. Box 167, Marathon, Texas

HOBBY—NOW BUSINESS

Owning one of the largest collection of cacti in the entire Northwest is the proud boast of Society member Robert Brunson, 436 Upton Ave., Minneapolis, Minn., according to an interesting illustrated article in the Minneapolis Times Tribune of May 3, 1940. Hobbyist Brunson started his collection in a very humble way—with only one plant. He gradually kept adding cacti of every shape and size until all the window sills in the house were filled. Then, because his wife started to complain, he improvised his first glass house outside their home.

That was ten years ago. Today cacti are no longer a hobby but a business, and his all steel-glass greenhouse, 8 by 20 feet in dimensions, contains 2000 plants, representing 450 species native to 45 states in the United States and Mexico and half the countries in South America. Some species, he says, are so difficult to handle that there is no demand for them. His assistant is his young daughter, whom he nicknames, "Cactus Kate."

